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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/668,026	09/21/2000	William T. Jennings	064751.0298	8477
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BAKER BOTTS LLP 2001 ROSS AVENUE 6TH FLOOR DALLAS, TX 75201			LAFORGIA, CHRISTIAN A	
			ART UNIT	PAPER NUMBER
			2131	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/668,026

Applicant(s)

JENNINGS, WILLIAM T

Examiner

Christian La Forgia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 26-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The pre-appeal conference of 04 November 2005 has been noted and made of record.
2. Claims 1-24 and 26-36 have been presented for examination.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-24 and 26-36 have been considered but are moot in view of the new ground(s) of rejection.
4. See further rejections below.

### ***Claim Rejections***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1-3, 6-8, 10-12, 14-20, 22-24, 26-30, and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Secure Communications Over Insecure Channels," by Ralph C. Merkle, hereinafter Merkle, in view of U.S. Patent No. 5,825,890 to Elgamal et al, hereinafter Elgamal.
7. As per claims 1, 6, 14, 28, and 33, Merkle teaches creating a set of N trap door encryption-decryption function pairs each paired with a corresponding token; transmitting the set of N trap door encryption-decryption function pairs along with a corresponding token to a receiver', randomly selecting at the receiver one of the trap door encryption-decryption function pairs and the corresponding token; recording in a key escrow database the created set of N trap door encryption decryption function pairs and the corresponding paired token; recording in the key escrow database the randomly selected trap door encryption decryption function pair along with the encrypted token; and inverting the created set of N trap door encryption-decryption

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function pairs and the randomly selected trap door encryption-decryption function pair along with the encrypted token to identify the decryption key (pages 296-299).

8. Merkle does not disclose adding randomization information at the receiver to the corresponding token of the selected trap door encryption-decryption function pair and encrypting the token with the added randomization information, the token corresponding with the randomly selected encryption-decryption function pair.

9. Elgamal teaches adding padding information to data prior to encrypting the data (column 17, lines 21-40).

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add randomization information at the receiver to the corresponding token of the selected trap door encryption-decryption function pair and encrypt the token with the added randomization information, the token corresponding with the randomly selected encryption-decryption function pair, as apposed to sending it back unencrypted as Merkle suggests, since Elgamal discloses at column 17, lines 21-40 that such a modification would allow secure distribution of information by making the intended data the appropriate length for block ciphers, as well as provide a method for the receiver to detect whether the data has been tampered with.

11. As per claims 2 and 29, Merkle teaches encrypting the created set of N trap door encryption-decryption function pairs and the randomly selected trap door function along with the decryption key prior to recording in the key escrow database (page 298).

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12. As per claims 3, 7, 14, 30 and 36, Merkle does not explicitly teach the receiver selecting more than one of the puzzles to decrypt. Clearly from the teachings of Merkle one of ordinary skill in the art would know that the work needed to be performed by an eavesdropper plotting to learn the decryption key is  $O(n^2)$ . Having the receiver choose more than one puzzles slightly increases the poor security of Merkle's system by forcing the eavesdropper to perform more calculations.

13. As per claim 8, Merkle teaches decrypting the cryptogram of a cryptogram/decryption key pair using the associated decryption key to identify token information (page 299).

14. As per claim 10, Merkle teaches the utilization of a symmetrical cryptosystem (page 296).

15. As per claim 11, Merkle teaches the utilization of a public key cryptosystem (page 299).

16. As per claims 12 and 35, Merkle teaches wherein recording in an escrow database further comprises encrypting the generated set of N cryptogram/decryption key pairs and a response message from the receiver prior to recording (page 296).

17. As per claim 15, Merkle teaches decrypting at the receiver the cryptogram to identify the corresponding token utilizing the decryption key of the cryptogram/decryption key pair (page 296).

18. As per claims 16 and 32, Merkle teaches encrypting at the receiver an escrow key comprises generating a cryptogram comprising', the corresponding token, the decryption key and randomization information (page 298).

19. As per claim 17, Merkle teaches decoding the encrypted escrow key comprises selecting a decryption key randomly from a selected group of decryption keys (page 296).

20. As per claim 18, Merkle teaches comprising recognizing a correct decoding result utilizing structural information embedded in the response message (page 296).

21. As per claim 19, Merkle teaches creating at an originator further comprises generating the set of  $N$  trap door functions utilizing a selected encryption function and a private encryption key (page 297).

22. As per claims 24 and 34, Merkle does not explicitly teach the receiver selecting more than one of the puzzles to decrypt. Clearly from the teachings of Merkle one of ordinary skill in the art would know that the work needed to be performed by an eavesdropper plotting to learn the decryption key is  $O(n^2)$ . Having the receiver choose more than one puzzles slightly increases the poor security of Merkle's system by forcing the eavesdropper to perform more calculations. Merkle teaches encrypting at the receiver an escrow key comprises generating a cryptogram

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comprising', the corresponding token, the decryption key and randomization information (page 298).

23. As per claim 23 and 25, Merkle teaches the utilization of a symmetrical cryptosystem (page 296).

24. As per claim 24, Merkle teaches the utilization of a public key cryptosystem (page 299).

25. As per claim 26, Merkle teaches recording in an escrow database the created N trap door functions along with each corresponding token and the encrypted escrow key with the randomly selected trap door function (page 298).

26. As per claim 27, Merkle teaches inverting the recorded set of N trap door functions and the encrypted escrow key with the randomly selected trap door function to identify a decryption key from the key escrow database (page 297 and 298).

27. Claims 4, 5, 9, 13, 21, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle in view of Elgamal as applied above, and further in view of U.S. Patent No. 5,815,573 to Johnson et al., hereinafter Johnson.

28. As per claims 4, 5, 31 Merkle teaches using identifying information to distinguish when puzzles have been correctly solved (page 296).

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29. Merkle and Elgamal do teach the use of a digital signature. Merkle does teach that keys are looked up based upon a user (page 298). Therefore there is a need to have a positively identifying means to ascertain the correct author of a published key.

30. Johnson teaches the use of a digital signature (column 10, lines 61-63). In view of this it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Johnson et al within the combined system of Merkle and Elgamal because it would associate a key to a user with provable certainty.

31. As per claim 9, Merkle and Elgamal do not teach explicitly using a linear transformation to combine the token information.

32. Johnson teaches the use of linear transformation to add keys together (figure 1, element 110). In view of this it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Johnson within the combined system of Merkle and Elgamal because linear transforms are a fast well established operation in order to carry out transformations.

33. As per claims 13 and 21, Merkle teaches using identifying information to distinguish when puzzles have been correctly solved (page 296).

34. Merkle and Elgamal do teach the use of a digital signature. Merkle does teach that keys are looked up based upon a user (page 298). Therefore there is a need to have a positively identifying means to ascertain the correct author of a published key.

35. Johnson teaches the use of a digital signature (column 10, lines 61-63).



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36. In view of this it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Johnson with the combined system of Merkle and Elgamal because it would associate a key to a user with provable certainty.

### ***Conclusion***

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

38. The following patents are cited to further show the state of the art with respect to encrypting padded data, such as:

United States Patent No. 6,802,013 to Follendore, III, which is cited to show encrypting data that has been padded with random information.

United States Patent No. 5,592,552 to Fiat, which is cited to show encrypting data that has been padded with random information.

United States Patent No. 5,815,573 to Johnson et al., which is cited to show encrypting data that has been padded with random information.

United States Patent No. 6,216,265 to Roop et al., which is cited to show encrypting data that has been padded with random information.

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (571) 272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER

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